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ABSTRACT

National standards call for increased focus on meaningful teaching and learning that is developmentally appropriate and helps all students reach proficiency not only in basic skills but also in higher order thinking skills and real-world application of skills. Among recommendations for including real-world experiences into students' education is service-learning (SL). The paucity of research and mixed findings on academic outcomes from K-12 SL lead to an examination of opportunity-to-learn conditions and practices in 271 middle-level schools in 16 states involved in documenting school improvement to find out by whom and how SL was implemented. Although most teachers believed SL was essential to effective education, they used the strategies infrequently. Yet a group of teachers did use these strategies on a regular basis. SL was used more regularly by knowledgeable, experienced teachers with more professional knowledge of the national and state curriculum standards and the issues related to adolescent development. Questions for further research include the structural/organizational characteristics of the schools where the strategies of service-learning were used more frequently; the differences, if at all, in the school climate; and the types of decision-making opportunities available to these teachers. (Contains 7 tables of data, 2 figures, 3 endnotes, and 70 references.) (Author/BT)

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By Whom and How is Service-Learning Implemented in Middle Level Schools: A Study of Opportunity-to-Learn Conditions and Practices

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ABSTRACT

National standards call for increased focus on meaningful teaching and learning that is developmentally appropriate and helps all students reach proficiency not only in basic skills but in higher order thinking skills and real-world application of skills. Among recommendations for including real-world experiences into students' education is service-learning (SL). The paucity of research and mixed findings on academic outcomes from K-12 SL led to an examination of opportunity-to-learn conditions and practices in 271 middle-level schools in 16 states involved in documenting school improvement to find out by whom and how SL was implemented. Although most teachers believed SL was essential to effective education, they used the strategies infrequently. Yet a group of teachers did use these strategies on a regular basis. SL was used more regularly by knowledgeable, experienced teachers--teachers with more professional knowledge of the national and state curriculum standards and the issues related to adolescent development.

As we head into the twenty-first century, a broad array of recommendations for school reform have emerged. Current school reform initiatives call for changes in the structure and organization of schools, an increase in family and community engagement, and modifications to instruction and assessment (Task Force on Education of Young Adolescents, 1989; National Association of Secondary School Principals [NASSP], 1996). Perhaps no recommendation has received more attention than the call for national standards. The national standards movement has raised awareness that public education must set high standards and expectations for all students. Nationally developed (e.g., American Association for the Advancement of Science [AAAS], 1993; National Council of Teachers of English [NCTE]/International Reading Association [IRA], 1996; National Council of Teachers of Mathematics [NCTM], 1989, 1995; National Research Council [NRC], 1995) and locally adapted (e.g., California, Connecticut, Kentucky, Rhode Island) content or curriculum standards describe what teachers are supposed to teach and students are expected to learn (National Education Goals Panel, Technical Planning Group, 1993).

Central to the recommendations for standards-based improvement is a call for an increased focus on meaningful teaching and learning that is developmentally appropriate and helps all students reach levels of proficiency in all core areas (e.g., AAAS, 1993; NCTE/IRA, 1996; NCTM, 1989; NRC, 1995; Resnick & Klopfer, 1989). This emphasis on standards has also brought with it an increased concern for students' development of a range of proficiencies, not only in basic skill areas, but in higher order thinking skills and real-world applications of skills (NCTM, 1989; NRC, 1995; Resnick & Klopfer, 1989). Illustratively, higher order thinking skills, such as problem solving and critical thinking, are part of the recommended curriculum standards in mathematics, science, language arts, and social studies. Although these instructional approaches are part of "modern" recommendations for educational reform, they have been around as central elements of reform since at least the beginning of this century (Dewey, 1902; 1938; Lipka, Lounsbury, Toepfer, Vars, Allessi, & Kridel, 1998). As Lauren Resnick (1987) noted:

> Although it is not new to include thinking, problem-solving, and reasoning in someone's curriculum, it is new to include it in everyone's curriculum. . . . It is a new challenge to develop educational programs that assume that all individuals, not just an elite, can become competent thinkers. (p. 7)

As educators have sought instructional strategies for fostering student proficiency in higher order thinking and subject matter integration, there has been a renewed interest in integrating classroom-based instruction with student experiences in community settings. Consistent with this focus on the importance of the interface of classroom instruction and real-world experiences are the recommendations of today's educational reform initiatives in which community-based experiences are viewed as an essential element (NASSP, 1996; Task Force on Education of Young Adolescents, 1989). Schools that have attempted to respond to these recommendations have developed a broad range of real-world experiences for students. The degree to which these efforts to involve students in the community have been fully integrated or coordinated with classroom instruction to support standards-based reforms has been highly variable and led to two quite different sets of approaches. The first approach, community service, "doing good for others," is intended to foster a sense of belonging, caring, and responsibility for one's community, whether it is the community of the school, neighborhood, or the world. School-based community service is often an extracurricular or add-on activity; it is not connected with academic learning or formal instruction. By contrast, "service-learning," the second major approach to involving students in the community, uses community-based learning experiences as an integral element of the teaching and learning process (Kendall, 1990; Kunin, 1997).

Literature Review

Service-Learning

Service-learning refers to both a type of pedagogy and a philosophy of education that combines "real world" community service with academic learning (Kendall, 1990; Kunin, 1997). The ASLER (1993) definition of service-learning illustrates both the complexity of this approach as a method of education and the highly

specific operationalization of the concept, at least as it was meant to be applied by its proponents. It is a means of education

> by which young people learn and develop through active participation in thoughtfully-organized service experiences that meet actual community needs . . . are coordinated in collaboration with the school and community . . . are integrated into each young person's academic curriculum . . . provide structured time for a young person to think, talk, and write about what he/she did and saw during the actual service activity . . . provide young people with opportunities to use newly acquired academic skills and knowledge in real-life situations in their own communities . . . enhance what is taught in school by extending student learning beyond the classroom . . . [and] help to foster the development of a sense of caring for others. (p. 2)

The National and Community Service Trust Act of 1993 (Pub. L. No. 103-82), the Council of Chief State School Officers (1993), and others offered similar definitions. Mintz and Liu (1994) synthesized the definition of service-learning as "a method and philosophy of experiential learning through which participants in community service meet community needs while developing their abilities for critical thinking and group problem-solving, their commitments and values, and the skills they need for effective citizenship" (p. 12) as they analyze and consider these experiences in the classroom.

Service-learning is distinguished from community service by the integration of service into the curriculum and structured time for reflection (Wade, 1997). Community service is often an extracurricular activity, such as a canned food drive, a visit to a nursing home, or work in a food pantry or soup kitchen. Service-learning is not a curricular add-on, but a pedagogy through which service projects provide the basis for meaningful academic learning.

Viewed in this way, one can see the ties of service-learning to some of the core recommendations for effective classroom-based instruction. Service-learning seeks to promote student engagement in inquiry, critical thinking, and problem solving through active participation in community service activities. Integrated curricular concepts and problem solving are taught in the context of real-life situations. Students investigate, analyze, evaluate, synthesize, and reflect on curricular concepts encountered during meaningful community service and apply those efforts to the solution of real, hands-on problems.

As educational strategies, both community service and service-learning extend Dewey's philosophy of experiential education to offer students opportunities to learn that they can make a difference in the community (Giles & Eyler, 1994a). But only service-learning seeks to intentionally bring that experience back to the classroom as a basis for meaningful teaching and learning and the development of students' higher order thinking skills.

Despite the arguments in favor of service-learning, more than thirty years after the phrase "service-learning" was coined by Ramsey and Sigmon in 1967 (Sigmon, 1990; Southern Regional Education Board, 1973), only a limited number of controlled studies have been conducted on its impact. One set of these studies has focused on the social and psychological outcomes for post-secondary students (e.g., Cohen & Kinsey, 1994; Giles & Eyler, 1994b) and for middle school and high school students (e.g., Conrad & Hedin, 1981; Kinsley, 1992). Another limited set of studies has focused on the effects of service-learning on academic achievement, intellectual development, and school behavior for college students (e.g., Eyler & Giles, 1999; Markus, Howard, & King, 1993; Shumer, 1994) and for middle school and high school students (e.g., Melchior, 1997,1998; Roberts & Moon, 1997; Schollenberger, 1985). Of these studies, a significant proportion have looked at service-learning in higher education. These studies will not be discussed here, as the focus is on K-12 school-based service-learning with particular attention paid to students' academic and intellectual development. A review of research on higher education service learning programs is available from Kraft and Krug (1994).

The limited number of studies on service-learning in K-12 schools have yielded inconsistent results regarding student achievement (Conrad & Hedin, 1981; Melchior,1998; Roberts & Moon, 1997; Schollengberger, 1985). One noteworthy finding in virtually every study on service-learning is participant

satisfaction (Conrad,1991). Clearly, despite and because of this participant satisfaction, sound research is needed to learn more about the process and effects of service-learning on other areas of student functioning (Schine, 1997; Wade, 1997) and the degree to which service-learning is aligned and complementary with other elements of successful school reform and improvement initiatives (Waterman, 1997).

Such data are critical in addressing the purported growing interest in the relationship between service-learning and educational standards. The National Youth Leadership Council (NYLC), a leader in service-learning, argued that service-learning offers the opportunity for effective implementation of standards-based instruction which emphasizes inquiry, critical thinking, problem solving, and reflection (NYLC, 1998). The Learn and Serve America National Service-Learning Clearinghouse (1999) estimates almost 6 million middle school and high school students are participating in service-learning. The need becomes more pressing for data on what is really happening concerning service-learning and what its impact may be in real settings and in the context of naturally occurring associated instructional practices.

Education Standards

The national education standards movement, in response to *A Nation at Risk* (National Commission on Excellence in Education, 1983), raised awareness that public education must set high standards and expectations for all students. Although some have raised questions about the degree to which public education is in a state of crisis (e.g., Berliner & Biddle, 1995), the need for high standards for all students remains. Promoting high standards for all students moves beyond basic skills to include higher order thinking skills (e.g., problem solving and critical thinking) and real-world application of skills. Illustratively, in Rhode Island 51% of eighth graders achieved proficiency in mathematics skills (i.e, computation) on the 1998 *New Standards Reference Examinations: Mathematics* (Harcourt Brace Educational Measurement, 1998), yet only 20% achieved proficiency in problem solving (Rhode Island Department of Education and National Center on Public Education and Social Policy [NCPE], 1999).

Efforts to establish standards have focused on curricular content, student performance, and opportunity-to-learn conditions in schools and classrooms. Standards-based curriculum and assessment have been developed nationally for many content areas including science, mathematics, English language arts, and social studies. Curriculum standards describe the content teachers are supposed to teach and students are expected to learn (National Education Goals Panel, Technical Planning Group, 1993). Standards-based teaching and learning focus on developing all students' critical thinking and inquiry, often in the context of real-world problem solving. Performance standards delineate the levels of proficiency which all students are expected to attain (National Education Goals Panel, Technical Planning Group, 1993). The curriculum and performance standards suggest changes for teaching and learning inside and outside classrooms in order to reach these goals.

Goals 2000: Educate America Act (1994) expanded education reform standards with the inclusion of voluntary opportunity-to-learn standards language. Opportunity-to-learn (OTL) standards determine

> the criteria for, and the basis of, assessing sufficiency or quality of the resources, practices, and conditions necessary at each level of the education system (schools, local educational agencies, and States) to provide all students with an opportunity to learn the material in voluntary national content standards or State content standards. (Pub. L. No.103-227, § 3 [7])

Opportunity-to-learn standards are intended to define the conditions that contributed to instructional strategies, including service-learning, which states, districts, and schools need to meet to ensure all students an equal opportunity to attain proficiency on performance assessments (Elmore & Fuhrman, 1995). The concept of equality of educational opportunity has persisted since at least the mid-nineteenth century with states struggling to balance the unequal distribution of wealth on which school funding is based (Coleman, 1968/1990; Elmore & Fuhrman, 1995). This struggle continues in many states even as the focus of equal opportunity has shifted from providing "a set of free public resources" (Coleman, 1968/1990, p. 29) to the need for schools to increase the quality of instruction and levels of achievement for all students (Coleman, 1968/1990; Elmore & Fuhrman, 1995).

Efforts to move toward educational practices that enable all students to attain the competencies sought by standards-based reform have spawned a wide range of recommendations for instructional models and strategies. Standards that cross content areas are those instructional strategies (e.g., problem solving, self-questioning strategies, small group discussions, and projects) that have been commonly recommended in the standards of multiple content areas (e.g., AAAS, 1993; NCTE/IRA, 1996; NCTM, 1989). One approach to curricula and instruction that provides for such meaningful teaching and learning for all students is service-learning. Indeed, many of the standards that cross content areas can be understood as highly consistent with the national models for quality school-based service-learning (Alliance for Service-Learning in Education Reform [ASLER], 1993) which emphasize critical thinking, inquiry, and problem solving (see Table 1 for the ASLER *Standards of Quality for School-based Service-Learning*).

Major predictors of student outcomes, including achievement and adjustment, consist of both the curriculum content offered to students and the way in which it is delivered. That is, *by whom* and *how* the content is presented (Shavelson, McDonnell, & Oakes, 1989, as cited in McDonnell, 1995). It is the opportunity-to-learn (OTL) standards that can be used to collect data on the nature of instruction offered to students by collecting information on the quantity and quality of instruction provided by schools (Porter, 1995). An examination of the OTL conditions and practices in middle-level schools involved in school improvement initiatives may provide insight into how and by whom the strategies of service-learning are used. The OTL conditions related to the instructional strategies of service-learning need to be examined before these strategies can be associated with student outcomes.

Measuring Opportunity to Learn

The concept of opportunity to learn (OTL) originated with the First International Mathematics Survey in the early 1960s. It was refined in the Second International Mathematics Study (SIMS), conducted between 1972 and 1983, when OTL questionnaires were administered to 6,000 teachers in order to examine the cross-national context for mathematics (Travers, Garden, & Rosier, 1988, as cited in McDonnell, 1995). The SIMS OTL data provided three types of information: (a) the degree of similarity between the intended and implemented curriculum; (b) comparisons in curriculum, and thus, opportunity to learn, across national education systems; and (c) differences in opportunity to learn within the same national system (McDonnell, 1995). The SIMS investigators used these kinds of information to analyze why certain trends existed, how to fix problems and how to replicate successes (McDonnell, 1995).

Since the inclusion of OTL standards in the Goals 2000: Educate America Act, policy debates have arisen about their uses and misuses (Elmore & Fuhrman, 1995; Porter, 1995). Porter (1993, 1995) and others have argued that OTL standards have the potential to support school improvement through the development of process indicators to be used as a guide to increasing student achievement.

As McDonnell (1995) posed, "If policymakers and the public are interested in OTL data that are both comparable across local jurisdictions and can be disaggregated to the school level, teacher surveys will be the most feasible way to collect such information" (p. 310). Teacher surveys of OTL should include "process measures, such as teacher background and experience, school- and grade-level organization, course offerings and student course-taking patterns, curriculum content, instructional materials availability and usage, and instructional strategies" (McDonnell, 1995, p.309).

National organizations (e.g., National Center for Education Statistics [NCES], National Assessment of Educational Progress [NAEP]) have sponsored surveys of teachers, students, administrators, and parents regarding school structure and organization, resources, teacher qualifications, curricular content, instructional practices, and student course-taking patterns. NCES has collected information on the condition of elementary and secondary schools and staffing since the early 1980s (Gruber, Rohr, and Fondelier, 1996). NCES' *Schools and Staffing Survey (SASS)*, "a set of concurrent and integrated surveys . . . designed to provide a composite national snapshot of America's public and private schools" (Gruber, Rohr, and Fondelier, 1996, p. 3), includes a public and private teacher questionnaire. The *1993-94 SASS Teacher Questionnaires,* the latest versions, were

designed to compare new and experienced teachers' educational experiences, preparation, demographic characteristics, and perceptions and attitudes toward teaching, job mobility, and workplace conditions (Bandeira de Mello & Broughman, 1996; Gruber, Rohr, and Fondelier, 1996).

NAEP surveys students to assess their academic skills, knowledge, and attitudes in several subjects areas. NAEP also surveys students' teachers and administrators about their background and instructional practices (Goertz, 1994). These surveys were designed to provide a context for understanding student achievement data, differences in access to instruction and services, and changes in other policy-related variables over time (Goertz, 1994). In other words, the NAEP surveys were designed to measure students' opportunities to learn the content on which they were being assessed by examining the curriculum content offered to them, as well as how and by whom the content was presented.

Although helpful at a national level in understanding how the curriculum is taught and by whom, it is not always possible for the data from national surveys, such as *SASS* and NAEP's *Eighth Grade Mathematics Teacher Questionnaire*, to be disaggregated to the local and school levels (McDonnell, 1995). What is needed are teacher survey data that are comparable across local jurisdictions and disaggregated to the school level in order to provide important and useful information on how the content is presented and by whom. One such survey tool is the *High Performance Learning Community (HiPlaces) Assessment* (Felner, 1997; Felner, Kasak, Mulhall, & Flowers, 1997).

High Performance Learning Community Assessment

The *HiPlaces Assessment* is a research-based series of instruments used to collect information from teachers, students, parents, and administrators in order to guide school improvement planning (Felner, 1998a; Felner, Kasak, Mulhall, & Flowers, 1997). Grounded in and used to further explicate the research on the conditions and practices that define high performing learning communities, the High Performance Learning Communities Model focuses on nine principles common to high performing schools (Felner, 1998a; 1998b). These nine principles are: (a) establishing small, personalized learning communities; (b) implementing deep, integrated standards-based instruction; (c) promoting success for all students; (d) maintaining emphasis on numeracy, literacy, and other foundational skills; (e) empowering decision-making at all levels; (f) developing well-prepared teachers; (g) fostering health and safety; (h) engaging families; and (i) making community connections. The *HiPlaces Assessment* analyzes these nine principles across five dimensions of the school context (Felner, 1998b). These dimensions include: (a) the structural/organizational characteristics of the school; (b) attitudes and beliefs of the staff, students, parents, and administrators; (c) school climate; (d) background and experience of teachers and administrators; and (e) the procedural characteristics, such as decision-making, parent contact, community involvement, and instructional practices (Felner, 1998a; 1998b; Felner, Kasak, Mulhall, & Flowers, 1997).

The *HiPlaces Assessment* has been used to collect the kinds of information Porter (1995) and others have called for regarding the quantity and quality of instruction provided by schools. Since 1990, the *HiPlaces Assessment* measures have been used successfully with over 90,000 teachers, 2,500 administrators, 1,000,000 students, and 90,000 parents in over 3,000 schools.

For this study, information from the *HiPlaces Assessment* (Felner, 1997) staff surveys was used to examine by whom service-learning was implemented and how teachers who used the strategies of service-learning used other reform-recommended instructional strategies. This study adds to the knowledge base regarding the conditions and practices associated with school-based service-learning. The findings may help to inform efforts that seek to implement service-learning as an integral strategy of standards-based reform.

Methodology

Subjects and Procedures

The sample consisted of teachers and students from 324 public middle-level schools involved in five different initiatives[1] during the 1997-98 academic year. These efforts focused on whole school integrative reform across 16 states and ranged from foundation-funded initiatives aimed at middle-level recommendations

(e.g., *Turning Points*) to schools involved in statewide improvement efforts. The sample included 4,435 core classroom teachers.[2] For the variables considered in this study, 2,164 teachers from 271 schools had complete and reliable data.[3] As indicated in Table 2, the core classroom teachers used in the analyses in this study are representative of the original 4,435 cases as well as public school teachers nationally. Approximately one-third of the teachers have been teaching more than 20 years and one-seventh have taught three years or less; approximately 80% majored in education; virtually all hold bachelor's degrees, with nearly half holding master's degrees; and 95% are fully certified.

When considering the socio-demographic characteristics of the schools from which the sample was drawn, it may be helpful to know that approximately 92% of the 143,877 students (n = 132,822) who attended these schools were enrolled in Grade 6 (n = 34,163, 24%), Grade 7 (n = 51077, 36%), and Grade 8 (n = 47582, 33%). The remainder of the student population was in grades 5 or 9 and was not considered in subsequent analyses as only teachers of grades 6-8 were used. The grades 6-8 student population was evenly split between boys (51%) and girls (49%). The racial/ethnic composition of the student population included 52% White students, 15% Black/African American students, 21% Hispanic students, 4% Asian American students, 2% Native American students, and 6% multiracial students. Students' level of poverty was estimated by their eligibility for federally subsidized free or reduced-price lunch, with 51% eligible.
The 271 schools were evenly split among urban (34%), suburban (31%), and rural (36%) locations. Thirty-two percent of the students attended urban schools, 36% attended suburban schools, and 32% attended rural schools.

This study employed a secondary analysis of data previously collected using the 1997-98 *HiPlaces Assessment* (Felner, 1997) with data obtained from the staff and middle-level students in these schools. Participation in the staff and student surveys was voluntary and based on informed consent. Participants did not put their names on the survey and confidentiality was assured. Participation rates at the school level were, on average, above 80% for staff and 90% for students.

Instrumentation

The *HiPlaces Assessment* has been shown to have high levels of internal and inter-rater reliability as well as strong construct, convergent, discriminant, and most importantly, predictive validity. The *HiPlaces Assessment* staff survey includes 19 scales, of which 18 scales have a reliability $\alpha \geq .82$. The Classroom Routines and Practices and Standards-based Instruction scales have reliability α = .96 and .93, respectively. The Attitudes Toward Educational Practices and Attitudes Toward Standards-based Instruction scales have reliability α = .96 and .91, respectively. Since 1994, the Classroom Routines and Practices scale (mean $\alpha \geq .96$) and the Attitudes Toward Educational Practices scale (mean $\alpha \geq .94$) have been consistently reliable (NCPE, 1998).

Concerns about the reliability of teacher self-reports are addressed in the *HiPlaces Assessment* staff survey. For certain scales that have high social desirability, teachers are asked to report the frequency of practices of all teachers on their team or at their grade level rather than their own practice. Analyses of teacher responses are also compared with responses from students and administrators in the same school and again show strong convergent and discriminant validity (NCPE, 1998).

Measures

In order to address the core question of this study–by whom and how is service-learning taught in middle-level schools involved in school improvement--three core sets of measures were employed. Specifically, this study examined teacher reports of their (a) educational background and experience, (b) attitudes and beliefs toward educational practices, and (c) classroom instructional practices. In order to better understand the relationships among these measures, the interactions between these conditions were considered. Specifically, the following questions were addressed: (a) What educational beliefs and attitudes are associated with the practices of service-learning? (b) To what extent is service-learning implemented in these middle-level schools? and (c) By whom (e.g., experience, endorsements) are higher levels of service-learning implemented?

Educational Background and Experience

Teachers' educational background and experience were assessed using responses to questions regarding their primary role in their school, their primary grade taught, their experience, and their knowledge of students' developmental issues and curriculum standards. The items on this section of the staff survey, Structure, Background/ Experiences, were adapted from Epstein and MacIver (1990) as well as the National Educational Longitudinal Study and other U.S. Department of Education surveys of school and staffing (e.g., *1993-94 School and Staffing Survey [SASS] Teacher Questionnaires*, Bandeira de Mello & Broughman, 1996; Gruber, Rohr, and Fondelier, 1996).

Core classroom teacher.

Whether a teacher was a core classroom teacher or not was determined from their responses to questions on their primary role in their school and the amount of time they spent teaching different subject areas. Teachers were classified as core classroom teachers if they selected "classroom teacher" from 21 possible choices of primary role and indicated that they spent at least 50% of their time teaching mathematics, reading, science, language arts, and/or social studies. Core classroom teachers who indicated the grade level in which they spent the majority of their time as grade 6, 7, or 8 were selected for this study.

Teacher experience.

Teacher experience was assessed from items asking about teaching experiences, pre-service college preparation, degrees, certifications and endorsements, and grade level preference. Three items on the staff survey asked staff members to indicate how long they had (a) worked in the field of education, (b) worked with students in the grade level(s) they currently teach, and (c) been employed at their school. The eight response selections for each of these items ranged from *less than 1 year* to *more than 25 years*. Pre-service teacher preparation was assessed through two questions. One question asked staff at what level--elementary, middle, or secondary--they majored in during their pre-service college preparation. Another question asked at what school/grade level they had done their student teaching. Each staff member was asked to indicate all the degrees (*none* to *doctorate*), teacher certifications/endorsements (from 11 choices), and academic/content area certifications (up to nine) they had received. Staff were also asked their grade level preference for teaching.

Professional knowledge.

In order to assess teachers' knowledge of students' developmental issues and national and local education standards, staff were asked five questions. Two questions asked how much pre-service and post-service preparation staff had received in the developmental issues relating to instruction at the grade level(s) they were currently teaching. Four response selections ranged from *none* to the *equivalent of two or more courses.*

Three questions were asked related to knowledge of national and local education standards. Teachers were asked how familiar they were with national teaching standards in their primary content area, how much training they had received in these standards, and how prepared they felt they were to integrate standards into their instructional practices. Response selections ranged from *not at all/none* to *very familiar/very much*. They were also given the option of selecting "Standards have not been released for my primary content area" for the first two questions and "Not a focus in the grade level I teach" for the third question.

Classroom Instructional Practices

The procedural characteristics of teachers' classroom instructional practices were assessed using the Classroom Routines and Practices scale and the Standards-based Instruction scale. The subscales of the Classroom Routines and Practices scale are (a) Small Group Active Instruction, (b) Community-based Learning Opportunities, (c) Critical Thinking Enhancement Activities, (d) Citizenship and Social Competence Instruction, (e) Integration and Interdisciplinary Practices, (f) Health Promotion, (g) Mastery-based Assessment and Student Recognition, (h) Heterogeneous Grouping, (i) Basic Skills, (j) Mathematical Reasoning and Skill Enhancement Across the Curriculum, (k) Practices for Reading Skill Enhancement, (l) Practices for Writing Skills, (m) Availability and Integration of Literacy Resources, (n) Traditional Practices, (o) Authentic Instruction, (p) NCTM-based Practices (q) Cross-content Area Standards-based Practices, (r) Standards-based

Practices for Literacy Instruction, (s) Standards-based Practices for Applied Literacy: Analysis and Interpretation, and (t) Standards-based Practices for Numeracy. The Overall Classroom Routines and Practices scale, scored for 82 items has high internal consistency ($\alpha \geq .95$).

For each of the items on these subscales, teachers are asked to indicate to how often they employed each practice in the primary content subject class they teach. Each item is scored 1 to 7 in the direction of increased frequency (1 = *never*, 2 = *several times a year*, 3 = *monthly*, 4 = *several times a month*, 5 = *weekly*, 6 = *several times a week*, 7 = *daily*).

As noted earlier, service-learning is a synthesis of community service and academic learning. In this study, the Community-based Learning Opportunities subscale of the Classroom Practices and Routine scale was used to assess the frequency of implementation of service-learning. This subscale, which is one of the eight statistically derived subscales of the Classroom Practices and Routine scale, consists of eight items which were written to measure the construct of teaching students to be active citizens through community service (Felner, 1993; Shim, Felner, Brand, and Shim,1999). The Community-based Learning Opportunities subscale was mapped to the ASLER Standards (1993) definition of service-learning by six educators. Interrater reliability was .82 - .92.

Attitudes and Beliefs

The Attitudes Toward Educational Practices scale was used to assess teachers' attitudes and beliefs toward traditional and reform-recommended educational practices. This scale was developed based on research on educational practices by Epstein and MacIver (1990) and Epstein and Salinas (1992). The Attitudes Toward Educational Practices scale, which is linked to implementation items on the Classroom Routines and Practices scale, consists of 55 items and yields the following subscales: (a) Citizenship, (b) Social Competence and Critical Thinking; (c) Small Group Instruction; (d) Health Instruction, Policies, and Services; (e) Integration and Interdisciplinary Practices; (f) Parent Involvement and Outreach; (g) Traditional Practices; (h) Authentic/Mastery Assessment and Instruction; (i) Inclusion; (j) Need for Guidance and Social Service; (k) Community-based Learning; (l) Reading Skill Development and Integration Across the Curriculum; (m) Mathematics Skill Development and Integration Across the Curriculum; and (n) Standards-based Instruction. An Overall Attitudes Toward Educational Practices scale was scored for 49 items and has high internal consistency ($\alpha \geq .94$; NCPE, 1997; 1998).

For the items on Attitudes Toward Educational Practices scale, teachers are asked how much, on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*), they agree or disagree that each practice is essential to effective education in the grade level(s) they teach.

Results

The results are presented in four sections. The first section describes the educational background and experience characteristics of the core classroom teachers in the study. The second section presents the analyses of these teachers' attitudes and beliefs toward educational practices. The third section presents the findings regarding the question to what extent was service-learning implemented. The last section addresses the question by whom were higher levels of service-learning implemented. The analyses of teachers' background and experience characteristics which predict the frequency of service-learning are presented.

Educational Background and Experience

Before proceeding to the analyses of the specific questions, Pearson product moment correlations were computed to better understand the relationships between and among teachers' background and experience. Among the variables obtained from the 15 educational background and experience items, several patterns of association emerged. The correlation coefficients among the three indicators of teaching experience–(a) number of years worked in the field of education, (b) number of years worked with students in the grade level(s) they currently teach, and (c) number of years employed at their school--ranged from .71 to .76. Further, as would be expected, the relationships between teachers' pre-service preparation and types of certifications held, particularly for elementary and secondary education, were significant (*r*s ranged from .34 to .60). Teachers who

reported greater knowledge of students' developmental issues also tended to report greater knowledge of curriculum standards (*r*s ranged from .28 to .64).

Correlations were also computed between teachers' educational background and experiences, attitudes toward educational practices, and classroom instructional practices. No significant relationships emerged, with almost all correlation coefficients close to zero.

Attitudes and Beliefs

In order to compare the degree to which teachers embraced service-learning and other reform-recommended educational practices, means and standard deviations for each of the subscales of the Attitudes Toward Educational Practices scale were calculated (see Table 3). As depicted in Figure 1, teachers on average agreed that the strategies measured by 12 of the attitudes toward educational practices subscales, including Community-based Learning Opportunities, the scale used to measure service-learning, were essential to effective education in the grade levels they taught. They were not as supportive of the strategies measured by the Traditional Practices and Inclusion subscales.

To further examine the relationships, if any, among teachers' attitudes toward these educational practices, correlation coefficients were computed (see Table 4). The top half of this matrix reports correlation coefficients for all the teachers (n = 2164) in the study. The correlations between attitudes toward traditional practices and attitudes toward the other educational practices were slight (*r*s ranging from .01 to .12; mean r = .08), while the correlations between attitudes toward the other educational practices subscales were moderate to high (*r*s ranging from .19 to .90; mean r = .53). All but two correlation coefficients were significant at the .01 level.

In order to see if similar patterns emerged for teachers with a higher level of implementation of service-learning, correlation coefficients for the attitudes toward educational practices were computed for the teachers (n = 268) who reported using service-learning strategies at least monthly. (How these teachers were selected is described in the next section.) Nearly two-thirds (62 %) of the correlation coefficients were slightly larger for this subsample, as displayed in the bottom half of the correlation matrix in Table 4.

On average, teachers believed that service-learning was essential to effective education for their students. Teachers who used service-learning strategies in their classrooms at least monthly believed more strongly in the importance of the reform-recommended educational practices for their students.

Service-Learning and Other Classroom Practices

In order to better understand how often service-learning occurred in core teachers' classrooms, both absolutely and comparatively, descriptive statistics were computed for all the classroom instructional practices. The means and standard deviations of the classroom instructional practices subscales are presented in Table 5. Classroom instructional practices measured by 15 out of 20 Classroom Routines and Practices subscales occurred on average "*several times a month*." Teachers reported using the strategies of service-learning, on average, "*several times a year*." This was the lowest level of implementation of all the classroom instructional practices.

Yet, as can be seen in the box-whisker plot in Figure 2, many outliers and extremes are indicated for the Community-based Learning Opportunities scale, the scale used to measure service-learning. Closer examination of these outliers and extremes revealed that 268 teachers reported using service-learning strategies at least monthly. Of these teachers, one-third reported implementing these practices from "*several times a month*" to "*weekly*."

Next, associations among frequency and use of the classroom instructional practices were examined. Several interesting patterns emerged (see Table 6). The top half of the correlation matrix reports the correlation coefficients for the full sample of core classroom teachers (n = 2164). The correlations between the subscales of the Classroom Routines and Practices scale were moderate to high (mean r = .55) excluding the Traditional Practices and Basic Skills subscales. Positive, research-based practices were only weakly correlated with the Traditional Practices and Basic Skills subscales (*r*s ranging from .09 to .37; mean r = .15). Further, service-

learning was more strongly associated with the Critical Thinking, Authentic Instruction, Cross-content Area Standards-based Practices, and Overall Classroom Routines and Practices scales $r \geq .50$) than with the other practices. All correlations were significant at the .01 level, which may be an artifact of the sample size.

In order to see if these relationships remained the same for the teachers with a higher level of implementation of service- learning, correlations for the classroom instructional practices were computed for this subsample of teachers ($n = 268$). These correlation coefficients are reported in the bottom half of Table 6. Again, positive, research-based practices correlated less strongly with the Traditional Practices and Basic Skills subscales (mean $r = .24$) than with the other practices (mean $r = .50$) with 76% of the correlation coefficients greater than or equal to .30. Forty-one percent of these correlation coefficients were larger than those for the full sample.

By Whom Higher Levels of Service-Learning Were Implemented

In order to predict which type of teacher is more likely to use the strategies of service-learning more frequently, a discriminant function analysis was conducted. The 2,164 teachers in this study were assigned to one of three groups based on their use of service-learning strategies (SL_{LO}, $n = 320$; SL_{MOD}, $n = 1576$; and SL_{HI}, $n = 268$), as described in the previous section.

The predictor variables were selected based on the analyses of the frequency distributions and correlation coefficients of the background and experience variables. Based on the correlational analysis, the variable "number of years teaching middle-level students" was selected over the other two variables of length of teaching experience because of its redundancy with them ($r > .75$; Tabachnick & Fidell, 1996). Two responses to the certification item were selected based on their frequency (elementary certification = 46% and secondary certification = 49%) and correlation ($r = -.60$). Additional background and experience characteristics were accounted for by selecting combined elementary and middle-level and combined middle-level and secondary education college major. These responses correlated negatively and slightly with elementary and secondary certification ($r \leq -.26$). Student teaching placements were evenly distributed among elementary, middle, and high school (39%, 32%, and 30%, respectively). All five professional knowledge variables were selected based on their associations with the ten background variables. Nearly all correlation coefficients were close to zero. These analyses yielded 10 predictor variables from the original 15 educational background and experience items.

Therefore, the five teaching experience variables included the (a) number of years teaching middle-level students, (b) certification held –elementary and secondary, (c) college education major--elementary/middle and middle/high school, (d) student teaching placement, and (e) grade level preference. The five professional knowledge variables consisted of (a) the amount of pre-service preparation in middle-level students' developmental issues, (b) the amount of post-service preparation in middle-level students' developmental issues, (c) familiarity with national standards, (d) professional development in standards, and (e) preparation in state frameworks/standards. Evaluation of assumptions of linearity, normality, multicollinearity or singularity, and homogeneity of variance-covariance matrices revealed no threat to multivariate analysis.

Two discriminant functions were calculated. The overall indices of fit, Wilks' lambda = .94 and $\chi^2(24) = 126.86$ ($p < .001$), were significant for the first but not the second function. The first discriminant function accounted for 6% of the variance of the between-group variability. Only the first discriminant function maximally differentiated the SL_{LO} group from the other two groups. Therefore, only interpretations of the weights for this function are discussed. The structure matrix (see Table 7) suggests the best linear combination of the predictor variables ($r \geq |.30|$) for maximally distinguishing between teachers with low level implementation of service-learning and the other two groups was teachers' professional knowledge and the number of years teaching middle-level students. Teachers' knowledge of students' developmental issues and knowledge of curricular standards were positively associated with group membership while length of time teaching middle-level students was negatively associated with it.

Tamhane's T2 post hoc test indicated that teachers with low level implementation of service-learning have significantly less professional knowledge of students' developmental issues and curriculum standards. These teachers also had slightly more teaching experience than teachers in the other two groups (see Table 8).

Teachers who used service-learning strategies more frequently exceeded basic prerequisites, such as degrees and certification, with more professional knowledge of national and state curriculum standards and more professional knowledge of middle-level students' developmental issues. These teachers also had slightly less teaching experience. The average length of teaching experience for teachers in the SL_{III} group was 4-5 years, compared to an average 6-10 years teaching experience for teachers in the other two groups. These were not beginning teachers, but teachers with a few years experience in middle-level schools.

Summary

Data previously collected from the staff using the 1997-98 *High Performance Learning Community (HiPlaces) Assessment* were used to examine teachers' educational background and experiences, attitudes and beliefs toward educational practices, and classroom instructional practices. These data were utilized to address the question by whom and how was service-learning taught in middle-level schools involved in and documenting school improvement. The analyses of the opportunity-to-learn conditions and practices surrounding the implementation of service-learning in middle-level schools revealed several patterns.

The background characteristics of the middle-level teachers in this study are similar to public school teachers nationally. The examination of teachers' background and experience variables revealed no significant relationships between these and teachers' attitudes and beliefs toward educational practices and their use of the classroom instructional practices. The teachers in this study endorsed the reform-recommended instructional practices, including service-learning. Yet, the strategies of service-learning were used in their classrooms only several times a year. This was the least frequent of all the classroom instructional practices, which were used monthly to several times a month.

Teachers' professional knowledge and the number of years teaching middle-level students predicted their use of service-learning. More knowledge of students' developmental issues and more knowledge of curricular standards predicted more frequent implementation of the strategies of service-learning. By contrast, the greater the number of years teaching predicted less frequent use of service-learning.

Discussion

Service-learning is one response to the recommendation for aligning classroom instruction with community-based experiences and an increased focus on developmentally appropriate, meaningful teaching and learning for all students. This study sought to examine some of the opportunity-to-learn conditions and practices in middle-level schools involved in school improvement initiatives that contributed to the instructional strategies of service-learning. That is, this study sought to examine by whom and how service-learning was implemented in middle-level schools involved in school improvement initiatives. The results indicated that there was a significant difference in who implemented service-learning and how it was taught to students in middle-level schools.

Attitudes and Beliefs

The teachers in this study believed that the strategies of service-learning were essential to effective education for their students. The mean of 3.9 out of 5.0 on the Community-based Learning Opportunities subscale of the Attitudes Toward Educational Practices scale indicates that teachers agreed that the items on this subscale were essential to effective education for their students. The correlation analyses suggest that, in general, if teachers reported that they believed in the practices of service-learning, they also believed the other practices were essential to effective education, with the exception of Traditional Practices.

Service-Learning and Other Classroom Practices

When compared to the other classroom instructional practices, the strategies of service-learning were used least frequently. Teachers reported using the strategies of service-learning, on average, "*several times a year*." It is not clear why these strategies were not implemented more frequently. It may be that these strategies

require teachers to develop connections with the community. Teachers have not traditionally engaged the community in classroom experiences. They may not have the resources and/or support necessary to establish and maintain these connections with the community.

The patterns that emerged among the correlation coefficients for classroom instructional practices indicated that service-learning was more strongly associated with critical thinking, authentic instruction, cross-content area standards-based instruction, and the overall reform-recommended classroom practices. Teachers who used the strategies of service-learning tended to use the instructional practices of critical thinking, authentic instruction, and cross-content standards-based instruction. They tended not to use the instructional practices related to basic skills and traditional practices. These teachers may be able to see the connections between service-learning and the higher order thinking skills promoted by national education standards. Even though the strategies of service-learning were not used frequently, their impact on other instructional strategies seems to be powerful.

By Whom Higher Levels of Service-Learning Were Implemented

The strategies of service-learning were used by knowledgeable teachers. Although most teachers believed that the strategies of service-learning were essential to effective education for their students, as noted above, they used them infrequently. Yet a group of teachers did use these strategies on a regular basis. The strategies of service-learning were used more regularly by knowledgeable, experienced teachers--teachers with more professional knowledge of the national and state curriculum standards and the issues related to adolescent development. Well-qualified teachers, an important element of high performing learning communities (Felner, 1998a; 1998b), are key to improving student achievement. Well-qualified teachers are better able to structure the classroom learning environment and learning tasks that challenge all students, leading to improved student learning and achievement.

These teachers reported they had a deeper understanding of the curricula they were suppose to teach and what their students were expected to learn. The patterns of associations between the strategies of service-learning and critical thinking, authentic instruction, and cross-content standards-based instruction suggest that these teachers may be able to see the connections between the strategies of service-learning and the national education standards. They may use the community service component of service-learning to offer their students the real-world context for authentic instruction, critical thinking, and problem solving.

Teachers who implemented service-learning regularly were also more knowledgeable in the developmental issues of young adolescents. They were cognizant of ways to strengthen the learning process for their 10-14-year-old students through this critical period of physical and psychological change. These teachers may realize that young adolescents are social beings and learn best working with others. They provided learning opportunities, including community service, that can develop students' self-esteem, sense of belonging and usefulness, and personal relationships (Conrad & Hedin, 1981; Kinsley, 1992). These issues are crucial to developing healthy adolescents and contributing adults.

Service-learning was implemented by teachers who were experienced, yet slightly less experienced than most of their colleagues. These were not beginning teachers, but those with a few years experience. It may be that these teachers have overcome the stresses associated with beginning teaching. They may be more confident in their teaching abilities and ready to modify their instructional practices to align with their knowledge of adolescents and curricula. Although not part of this study, it may be assumed that their classroom management styles have been refined. With daily routines established, these teachers may be ready to broaden their instructional practices to include reform-recommended practices such as service-learning. They may now be able to implement the connections they know theoretically exist between standards-based practices and service-learning. They also may be less hesitant to take learning out of the classroom and into the community.

It is not clear why more experienced teachers did not implemented service-learning more frequently. Teachers who have taught for many years may be unaware of or reluctant to adopt a teaching strategy, such as service-learning, that diverges so much from traditional practices.

Teaching young adolescents through service-learning challenges teachers in at least three ways. Content-wise, teachers must perceive the curricular implications of issues raised by students resulting from experiences in the community. Issues that arise through the community service experience may not fall into the curriculum sequence or a single content area. Pedagogically, teachers must decide when to intervene, what suggestions to offer, while leaving the solutions, the knowledge construction and problem solving, for the students. Knowledgeable teachers often have a repertoire of strategies including facilitator, cognitive guide, and coach. Personally, teachers must grapple with not knowing. Teachers must be confident in themselves as learners. They must learn to deal with uncertainty and help their students grapple with the messy problems that often arise during service-learning. Addressing issues and solving problems may be a co-constructive process for teachers and students. Including critical thinking, problem-solving, and reasoning in everyone's curriculum through the implementation of service-learning may be one type of educational program Resnick (1987) and others have called for so that all students can become competent thinkers.

Experience, confidence, and awareness are necessary for teachers who adopt and implement service-learning. The teachers who implemented service-learning regularly seemed to have the professional knowledge and opportunity to address these challenges. They were experienced, knowledgeable, and presumably confident. These characteristics are not exclusive to teachers of service-learning, but to well-qualified teachers in general.

Conclusion

Service-learning was used more often by knowledgeable teachers who also implemented standards-based practices for literacy and numeracy more frequently. The students in these schools tended to be ethnic minorities, poorer, and from urban schools. As the ASLER Standards (1993) emphasized, quality school-based service-learning "is most effective when it combines community needs and students' interests and is compatible with their skills and abilities" (p. 5). Providing teachers with professional development opportunities in adolescent development and curriculum standards may help to ensure more quality and developmentally appropriate service-learning programs. Sharing the enthusiasm and effective classroom practices, aiding teachers with the knowledge and structures necessary to implement service-learning may increase school-level implementation so that more students have the opportunity to learn through service-learning. This in turn may provide a richer context for examining student outcomes, including achievement.

Limitations

Scale Measurement

This study used the Community-based Learning Opportunities subscale of the Classroom Routines and Practices scale from the *High Performing Learning Communities Assessment* (Felner, 1997) as the measure of service-learning. This scale has performed consistently in factor analyses and reliability (Shim, Felner, Brand, & Shim, 1999) and interrater reliability between this scale and the ASLER Standards (1993) definition of service-learning was relatively high. The scale may be limited in that reflection, an essential component of service-learning (Silcox, 1993; Wade, 1998), is not addressed explicitly. The addition of an item which asks teachers how often they include guided reflection on community service-learning activities would strengthen this subscale as a measure of service-learning. Currently an item that asks teachers about the use of guided reflection on community service-learning activities is being tested.

Sample

Although the qualifications of the teachers in this sample were representative of the national sample of teachers, their instructional practices may not have been representative of practices in middle level schools. The teachers in this study teach in schools that were actively involved in implementing and documenting school-based reform recommendations, including *Turning Points* (Task Force on Education of Young Adolescents, 1989) and *New Standards* (National Center on Education and the Economy and the University of Pittsburgh, 1997). Many of these schools have been involved with various school improvement initiatives for many years. Yet even with a focus on reform, the level of service-learning implementation was infrequent. One can theorize that in most middle-level schools service-learning would be almost non-existent.

Implications

Professional Development

Considerable expertise and advanced abilities are often required of teachers involved with service-learning to effectively address the ill-structured problems encountered in the community (Eyler & Giles, 1999). Teachers need expertise in subject matter and in facilitating students' critical thinking and problem solving (ASLER, 1993). Several institutions of higher education are responding to this need by offering preservice and in-service teacher education courses on the philosophy and methodology of service-learning (Wade, 1997). As more teacher education programs focus on preparing teachers to teach young adolescents in middle-level schools, attention should be given to the pedagogy and philosophy of service-learning as an instructional approach to meeting the educational and psychological need of students.

Purpose of Schooling

Excellence, equity, and social change all influence the American curriculum. Current thinking in education focuses on excellence and equity with high standards for all students (Goals 2000: Educate America Act, 1994; Task Force on Education of Young Adolescents, 1989). Yet excellence, equity, and social change need not be disparate.

When service-learning is implemented by knowledgeable teachers, connections may be constructed between the social change view of education and the standards-based approach of educational excellence and equity. As noted earlier, service-learning is more than community service. Meeting the educational needs of the students as well as the needs of the community are integral to service-learning. Students' educational needs may be met through teacher-facilitated critical thinking, problem solving, and standards-based practices focused on issues raised during the community experience. By implementing the educational strategy of service-learning in more classrooms, regardless of the school's location or student population, more students may have an equitable opportunity to learn a standards-based curriculum that is developmentally appropriate and participate in community service that is integrated into the curriculum.

Questions for Further Research

This study examined three conditions and practices associated with service-learning in middle-level schools involved in documenting school improvement. Attitudes and beliefs of core classroom teachers, their background and experience, and the procedural characteristics of their classroom instructional practices were analyzed. Other dimensions that may need examination in order to better understand the context in which service-learning occurred include the structural/organizational characteristics of the schools, the school climate, and other procedural characteristics, such as decision-making, parent contact, and community involvement. Questions for further research include the structural/organizational characteristics of the schools where the strategies of service-learning were used more frequently; the differences, if at all, in the school climate; and the types of decision making opportunities available to these teachers. What does the longitudinal data from these initiatives suggest about the change, if any, in the frequency of service-learning in these schools and its relationship to other dimensions of the school context?

When these questions are addressed we may then be better able to examine the relationship between service-learning and student outcomes, including achievement.

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Endnotes

1. Jefferson County (CO) School District , Kentucky Middle Level Initiative, Middle Grade School State Policy Initiative, Middle Grades Improvement Program (Indiana), and School Accountability for Learning and Teaching (Rhode Island). For a more detailed description of these projects see the Special Issue "Research on Middle Grades," 1997, *Phi Delta Kappan, 78*(7).

2. School staff are classified as core classroom teachers if they selected "classroom teacher" as their primary role in the school and indicated that they spent at least 50% of their time teaching mathematics, reading, science, language arts, and/or social studies.

3. In most cases, staff who were dropped failed to have complete data for the 15 educational background and experience items.

Table 1

ASLER Standards of Quality For School-based Service-Learning

I. Effective service-learning efforts strengthen service and academic learning.

II. Model service-learning provides concrete opportunities for youth to learn new skills, to think critically and to test new roles in an environment which encourages risk-taking and rewards competence.

III. Preparation and reflection are essential elements in service-learning.

IV. Students' efforts are recognized by their peers and the community they serve.

V. Youth are involved in the planning.

VI. The service students perform makes a meaningful contribution to the community.

VII. Effective service-learning integrates systematic formative and summative evaluation.

VIII. Service-learning connects schools and its community in new and positive ways.

IX. Service-learning is understood and supported as an integral element in the life of a school and its community.

X. Skilled adult guidance and supervision is essential to the success of service-learning.

XI. Pre-service and staff development which includes the philosophy and methodology of service-learning best ensure that program quality and continuity are maintained.

Table 2

Percent of Teacher Samples' Qualifications

	Sample (n = 2,164)	Original Sample (n = 4,435)	National Sample[1] (n = 2.7 million)
	Years Teaching Experience		
3 or less	14	15	12
4-10 (4-9)	31	29	21
11-20 (10-19)	22	25	32
More than 20 (20 or more)	33	30	35
	College Major		
Education	81	80	87
	Degrees Held		
Bachelors	99.8	99.8	99.3
Masters	49	48	47
6th Year	6	6	5
Doctorate	0.7	0.8	0.7
	Certifications		
Full Certification	95	95	91
Provisional	4	5	4
None	0.5	0.5	4

[1]National Sample of public school teachers taken from *America's Teachers: Profile of a Profession, 1993-94* (1997) by R. R. Henke, S. P. Choy, X. Chen, S. Geis, M. N. Alt, & S. P. Broughman is the most recent data available. Categories used in *America's Teachers: Profile of a Profession, 1993-94* are in parentheses.

Table 3

Means and Standard Deviations for Attitudes Toward Educational Practices

Subscale	*Mean*	*SD*
Reading Skill Development and Integration	4.47	.55
Small Group Instruction	4.31	.55
Citizenship, Social Competence, and Critical Thinking	4.28	.53
Standards-based Practices	4.20	.48
Integration and Interdisciplinary Practices	4.12	.56
Mathematics Skill Development and Integration	4.08	.76
Overall	4.08	.45
Health Instruction	4.06	.61
Need for Guidance and Social Services	4.05	.70
Parent Involvement	4.02	.66
Authentic/Mastery Assessment and Instruction	3.96	.57
Community-based Learning	3.91	.77
Traditional Practices	3.51	.61
Inclusion	3.47	.91

Note. Response selections ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

Table 4

Attitudes Toward Educational Practices and Standards-based Practices Correlation Matrix

Subscales	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Authentic/Mastery Assessment and Instruction		.69**	.51**	.35**	.55**	.63**	.54**	.53**	.59**	.11**	.51**	.49**	.83**	.87**
2. Citizenship, Social Competence and Critical Thinking	.69**		.60**	.30**	.74**	.59**	.51**	.72**	.59**	.09**	.57**	.67**	.89**	.82**
3. Community-based Learning	**.55****	**.65****		.25**	.58**	.45**	.37**	.42**	.44**	.07**	.72**	.48**	.71**	.55**
4. Inclusion	**.41****	.30**	**.28****		.26**	.42**	.19**	.19**	.25**	-.03	.24**	.26**	.45**	.33**
5. Health Instruction	.54**	**.75****	.57**	.20**		.48**	.43**	.53**	.51**	.12**	.52**	.87**	.80**	.62**
6. Integration and Interdisciplinary Practices	.67**	.59**	**.46****	**.47****	.47**		.46**	.49**	.62**	.01	.41**	.43**	.76**	.68**
7. Mathematics Skill Development and Integration	**.59****	.49**	.37**	**.25****	**.48****	**.48****		.43**	.42**	.11**	.36**	.38**	.61**	.71**
8. Reading Skill Development and Integration	**.54****	**.78****	**.48****	**.20****	.51**	**.50****	**.48****		.51**	.11**	.47**	.46**	.72**	.80**
9. Small Group Instruction	**.64****	**.60****	**.48****	**.40****	**.52****	.72**	**.54****	**.53****		.09**	.43**	.45**	.70**	.68**
10. Traditional Practices	**.22****	**.21****	**.08**	**.11**	**.17****	**.19****	.09	**.15***	**.16****		.07**	.11**	.11**	.12**
11. Parent Involvement	.45**	.56**	**.76****	.24**	.43**	.36**	.32**	**.48****	.38**	**.09**		.45**	.71**	.55**
12. Need for Guidance and Social Services	.47**	**.68****	.45**	.20**	**.88****	.36**	**.44****	.46**	.40**	**.13****	.33**		.72**	.56**
13. Overall Attitude Towards Educational Practices	**.84****	.89**	**.74****	**.48****	.78**	**.78****	**.65****	**.74****	**.76****	**.23****	.67**	.67**		.90**
14.Standards-based Practices		.87**	.81**	**.57****	**.39****	.62**	**.69****	**.77****	**.81****	**.73****	**.19****	.51**	.55**	**.91****

Note. Full sample (n = 2164) above the diagonal; subsample (n = 268) below diagonal. **Correlation is significant at the 0.01 level (2-tailed). **Bold** = larger correlation coefficient for subsample.

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Table 5

Means, Standard Deviations, and Frequencies for Classroom Instructional Practices

Classroom Routines and Practices		
Subscale	*M*	*SD*
Literacy Instruction	4.41	1.29
Basic Skills	4.19	1.14
Citizenship and Social Competence Instruction	4.18	1.41
Traditional Practices	4.15	1.21
Availability and Integration of Literacy Resources	4.08	1.24
Mathematical Reasoning and Skill Enhancement	4.05	1.77
Mastery-based Assessment and Student Recognition	3.84	1.08
Practices for Reading Skill Enhancement	3.76	1.26
NCTM-based Practices	3.70	1.14
Practices for Writing Skills	3.68	1.27
Numeracy	3.68	1.23
Small Group Active Instruction	3.67	1.23
Authentic Instruction	3.66	1.21
Cross-Content Areas	3.54	1.17
Heterogeneous/Multi-level Grouping	3.51	1.22
Overall	3.47	.86
Critical Thinking Enhancement Practices	3.22	1.11
Applied Literacy: Analysis and Interpretation	3.21	1.17
Integrated and Interdisciplinary Practices	2.76	1.08
Integration and Coverage of Health Topics/Activities	2.41	1.24
Community-based Learning Opportunities	1.91	.76

Note. Response selections were 1 = *never*, 2 = *several times a year*, 3 = *monthly*, 4 = *several times a month*, 5 = *weekly*, 6 = *several times a week*, 7 = *daily*.

Table 6

Classroom Routines and Practices and Standards-based Practices Correlation Matrix

	Classroom Routines and Practices																	*Standards-based Practices*			
Subscale	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*
Classroom Routines and Practices																					
1.Authentic Instruction		.18	.59	.50	.70	.59	.38	.52	.51	.28	.61	.57	.62	.68	.13	.63	.82	.85	.63	.55	.49
2. Basic Skills	.28		.30	.14	.10	.17	.21	.10	.16	.30	.19	.18	.12	.25	.52	.12	.26	.12	.19	.10	.25
3. Citizenship and Social Competence	.51	.38		.46	.50	.52	.48	.43	.45	.31	.45	.57	.48	.58	.27	.49	.76	.57	.61	.43	.46
4. Community-based Learning Opportunities	.35	.21	.26		.51	.43	.44	.47	.37	.22	.39	.44	.45	.45	.16	.43	.64	.50	.40	.46	.38
5.Critical Thinking	.64	.25	.40	.38		.54	.42	.57	.55	.12	.52	.74	.57	.56	.10	.91	.79	.83	.74	.84	.37
6.Heterogeneous Grouping	.54	.36	.39	.24	.54		.37	.53	.54	.30	.58	.53	.58	.63	.15	.51	.79	.63	.58	.45	.51
7. Health Integration	.31	.34	.37	.34	.41	.26		.45	.36	.25	.34	.44	.36	.38	.25	.39	.56	.40	.40	.41	.36
8. Integrated/ Interdisciplinary	.57	.25	.32	.38	.37	.34	.46		.52	.24	.48	.52	.50	.46	.09	.52	.70	.57	.51	.53	.41
9. Literacy Resources	.54	.37	.46	.30	.56	.52	.38	.37		.08	.45	.67	.39	.53	.11	.57	.67	.53	.80	.52	.30
10. Math Reasoning/ Skill Enhancement	.30	.31	.22	.16	.22	.27	.27	.28	.22		.54	.07	.45	.28	.37	.05	.43	.28	.06	.05	.84

Subscale	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*1*	*2*	*3*	*4*
11. NCTM-based	**.61**	**.30**	.34	.24	.51	.57	.29	**.54**	**.51**	**.56**		.41	.72	.54	.17	.44	.75	.67	.44	.42	.85
12. Reading Skill Enhancement	.49	**.34**	.53	.33	.74	.50	.39	.48	.66	**.12**	**.41**		.45	.49	.16	.80	.74	.63	.90	.73	.28
13. Small Group Active Instruct.	.59	**.23**	.31	.30	.56	.58	.27	**.55**	.38	.39	**.72**	.43		.54	.14	.51	.78	.78	.46	.45	.72
14. Masterybased Assessment and Student Recogn.	.62	**.33**	.52	.39	.54	.52	.35	**.47**	.50	.27	.50	.43	.41		.25	.50	.79	.69	.56	.44	.48
15. Traditional	.07	**.52**	.25	.15	**.13**	.14	**.36**	.07	**.19**	.31	.15	**.24**	.02	**.28**		.09	.25	.10	.14	.10	.30
16. Writing Skills	.58	**.26**	.45	.32	.89	.50	.39	**.54**	**.57**	**.17**	**.45**	.79	.50	.45	**.13**		.74	.71	.84	.79	.28
17. Overall	.79	**.44**	.65	.51	**.79**	.74	.52	**.75**	.70	**.45**	**.76**	.72	.75	.75	.24	**.75**		.87	.77	.68	.68
19. Cross-content Area	.82	**.23**	.44	.36	.82	.59	.34	**.59**	.52	**.30**	.66	.59	.76	.64	.05	.68	.84		.66	.63	.55
20. Literacy Instruction	.58	**.34**	**.61**	.27	.71	.54	.36	.49	.76	**.17**	**.46**	.87	.41	.48	**.21**	.83	.76	.60		.63	.28
21. Literacy Analysis	.54	.27	.39	.35	**.87**	**.48**	.41	.53	**.57**	**.17**	**.45**	**.79**	**.47**	.43	**.16**	**.80**	**.71**	**.65**	**.66**		.27
22. Numeracy	**.49**	**.33**	.34	.25	.43	.48	.35	**.50**	**.41**	.83	**.88**	**.33**	.70	.43	.27	**.37**	**.71**	.55	**36**	**.37**	

Note. Full sample (n = 2164) above the diagonal; all correlations significant at the 0.01 level (2-tailed). Subsample (n = 268) below the diagonal; correlations > .15 significant at the 0.01 level (2-tailed); correlations > .12 significant at the 0.05 level (2-tailed). **Bold** = larger correlation for subsample.

Table 7

Background and Experience Structure Matrix

Variables	Function 1	Function 2
Professional Development in Standards	.58	.35
Post-service Professional Development in Developmental Issues	.54	-.44
Preservice Courses in Developmental Issues	.51	.02
Preparation in State Frameworks/Standards	.48	-.02
Familiarity with National Standards	.40	.29
Elementary Certification	.26	-.18
Preferred Grade Level	-.23	.16
Middle and Secondary Education Major	-.16	.60
Middle Level Experience	-.34	-.42
Secondary Certification	-.29	.39
Student Teaching Placement	-.19	.26
Elementary and Middle Level Education Major	.14	-.17

Note. Variables ordered by absolute size of correlation within function.

Wilks' lambda = .94 and $\chi^2(24) = 126.86$ are significant ($p < .001$) only for the first function, not the second function.

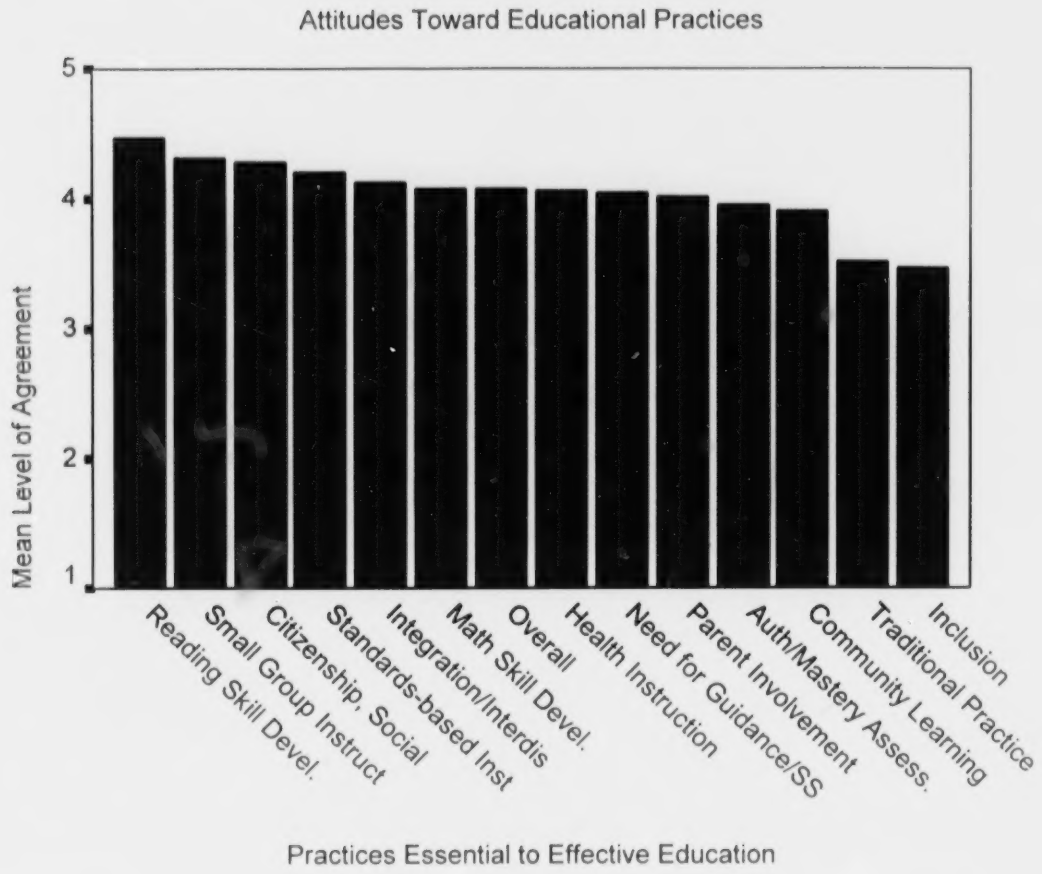

Figure 1. Means of teachers' Attitudes Toward Educational Practices subscales.

Note. Response selections ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

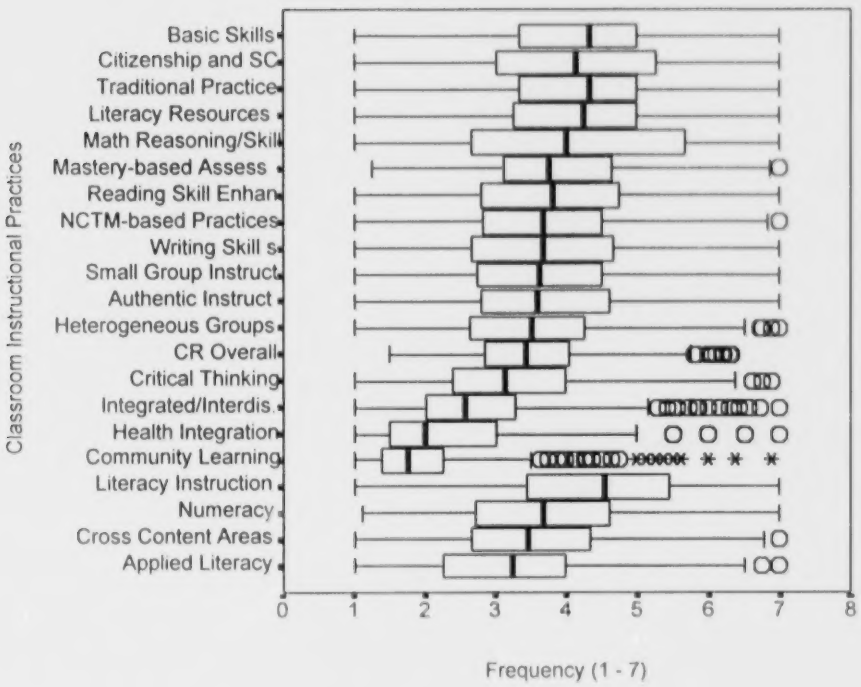

Figure 2. Frequency distribution of core classroom teachers' instructional practices for Classroom Routines and Practices Subscales and Standards-based Instructional Practices Subscales.

○ = outliers; ✶ = extremes.

Response selections were 1 = *never*, 2 = *several times a year*, 3 = *monthly*, 4 = *several times a month*, 5 = *weekly*, 6 = *several times a week*, 7 = *daily*.